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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,053	07/09/2003	J. Scott Buchanan	2001B067/2	9521

7590 10/29/2004
Exxon Mobil Research and Engineering Company
P.O. Box 900
Annandale, NY 08801-0900

EXAMINER
FORTUNA, ANA M

ART UNIT 1723	PAPER NUMBER
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DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,053

Applicant(s)

BUCHANAN ET AL.

Examiner

Ana M Fortuna

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/8/04, and 7/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. Claims 1-3, 5-7, 12-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No.6, 620,958. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of the present claims above overlap the limitations of the claims in the patent. Claim 1 can be compared to claim 6 of the patent, except that an operating pressure range is added in the patent. Claim 1, although is directed to the process of producing (e.g. the permeate product), is directed to the same process and further limit to specific polar and non-polar components, however the membrane separation of polar and non-polar are present in the claim of the patent). Claims 2-3 correspond to claims 2-3 of the patent, claims. Claim 5 is a combination of claims 1 and 2 of the patent, claim 12 and 13 correspond to claims 4 and 5 of the patent.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 8, 9, 10, 11 are rejected under 35 U.S.C. 102(b) as being anticipated by McGlothlin et al (6,075,073)(hereinafter '073). Reference '073 discloses the separation of lower polarity from another having varying polarity or higher polarity, and permeating the lower polarity component through the membrane, e.g. aliphatic hydrocarbon separation from water impurities (where the non-polar or low polarity fluid is the hydrocarbon), and the polar fluid in the mixture is water (abstract, column 1, lines 10-25, column 2, lines 28-37, and last paragraph bridging with column 3, lines 1-6). The hydrocarbon solvents are selected from pentane, pentene, hexane cyclohexane and cyclopentene (non-polar). The membrane, as claimed in claims 1 and 11, including the properties claimed, e.g. non-polar polymeric membranes are also disclosed in reference '073 (column 3, lines 22-45).

As to claim 2, eluting the permeate, e.g. by a sweep gas, or by an extracting solvent, is also disclosed (column 3, lines 11-20, and column 4, lines 30-40). Regarding claims 8 and 9, composite membranes having a support and layer (s) of the polymer are disclosed in reference '073 (column 5, second paragraph, column 3, lines 35-45).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6, 7, rejected under 35 U.S.C. 103(a) as being unpatentable over McGlothlin et al (6,075,073)(hereinafter '073) applied to claim 1, above. Reference '073 does not clearly disclose using multiple membranes in series. Reference '073, discussed above, and claimed in the above claims, a diversity of membranes made from different materials and having distinct selectivity are suggested for the process. It would have been obvious to one skilled in the art at the time the invention was made to use secondary membranes connected to the first membrane for further purification of the permeate, e.g. removal of remaining impurities in the solvent. Regarding claim 7, combining membranes from the list provided by '073, e.g. neoprene, and styrene-butadiene, which inherently provide different degree of selectivity, and which are suggested in '073 (column 3, lines 24 and 29), it would have been also obvious to one skilled in the art from the particular separation.
6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over McGlothlin et al (6,075,073)(hereinafter '073) and further in view of Datta et al (5723639)(hereinafter '639). The membrane as an integral part of a membrane reactor is not disclosed in reference '073. Reference '639 teaches providing a pervaporation

membrane, made of styrene or their copolymers integrally connected to a reactor producing the components to be separated by the membrane (Figure 1, elements 14 and 20, column 6, lines 60-68 and column 7, lines 1-2 and 26-30). Since the system in reference '639 contains membrane suitable for the separation process of '073, e.g. non-porous rubber membrane, and styrene copolymer membranes, it would have been obvious to one skilled in the art to arrange a system for the process of '073, containing the reactor or container producing the components to be separated, integral with the membrane, as suggested in '639. To use the apparatus of '639 in the separation of polar and non-polar fluids, under the conditions disclosed in '073, for the same type of membrane.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Reference 4,846,977 discloses a list of polar and non-polar fluids and its separation by membranes, reference 4,963,165, also teaches separation of polar and non-polar fluids by composite membranes, 5,928,409 teach the membrane and its use.

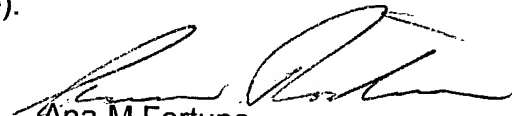
8. Claims 14-18 have been canceled as requested on paper filed on 7/09/03.

9.. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF
September 21, 2004